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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,310	03/12/2004	Hidayat Husain	4320-553	5768
1059	7590	05/13/2005	EXAMINER	
BERESKIN AND PARR 40 KING STREET WEST BOX 401 TORONTO, ON M5H 3Y2 CANADA			FORTUNA, ANA M	
			ART UNIT	PAPER NUMBER
			1723	
DATE MAILED: 05/13/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/798,310

Applicant(s)

HUSAIN ET AL.

Examiner

Ana M. Fortuna

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 23-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 and 38-58 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/12/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claim 1-22 and 38-58 drawn to a process of filtering water, classified in class 210 subclass 650.
 - II. Claims 23-33, drawn to spiral wound module, classified in class 210, subclass 493.4.
 - III. Claims 34-37 drawn to an apparatus containing a spiral wound membrane classified in class 210, subclass 321.74.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II-III are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the module or the apparatus of groups II-II can be used for filtering any other fluids other than water, e.g. milk.
3. Inventions II and III are related as apparatus and product made. The inventions in this relationship are distinct if either or both of the following can be shown: (1) that the apparatus as claimed is not an obvious apparatus for making the product and the apparatus can be used for making a different product or (2) that the product as claimed can be made by another and materially different apparatus (MPEP § 806.05(g)). In this

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case the product of group II, e.g. the spiral wound module, can be used in a distinct apparatus, e.g. immersed in a fluid system open to the atmosphere. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. Because these inventions are distinct for the reasons given above and the search required for Groups I is not required for group III, and the search required for group I is not required for group II, restriction for examination purposes as indicated is proper.

5. During a telephone conversation with Scott Pundsack on 4/28/04 a provisional election was made with traverse to prosecute the invention of group I, claim 1-22 and 38-58. Affirmation of this election must be made by applicant in replying to this Office action. Claims 23-37 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-6, 17, 18,19, 20, 38-43, 55-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holland et al (4,855,058)(hereinafter '058). Reference '058 discloses the process of filtering water in a spiral wound membrane module and tailoring the module to produce a recovery higher than 75 %, and more particularly 90 % (abstract, Fig.s 1 and 6, column 9, lines 50-60, and column 10, lines 7-16). Reference '058 discloses changing the dimensions of the feed channel to avoid changes in feed fluid velocity and tailoring the module for a predetermined recovery (column 6, lines 30-68, and column 7, lines 1-14). The specific claimed superficial velocity as claimed in claims 1, and 38 are not disclosed in '058. '058 teaches designing the module depending on desired operation conditions, the reduction in changes in feed velocity are achieved in '058 by providing longer feed flow path by using tapered spacers to reduce the distance between membranes progressively to increase downstream flow velocity, or tapering the width of the flow path , etc. (column 4, lines 12-25, column 6, lines 47-68, and column 7, lines 1-20). Based on this teaching, one skilled in the art at the time the invention was made would have been motivated to taper the module or the channels as suggested in '058, in order to obtain a particular recovery and achieve a particular superficial fluid velocity. Regarding claim 38 reference '058 discloses the membrane as

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being selected between ultrafiltration, reverse osmosis and microfiltration (column 8, second paragraph).

As to claims 2 and 39, the recovery was discussed above.

As to claims 3, 40-41, reference '058 discloses the module with the permeability claimed, e.g., approximately 0.03 GFD/Psi, however the recovery for a single module is lower than the claimed value (column 10, second paragraph). '058 also suggest providing modules in parallel to achieve the overall conversion capacity (column 4, second paragraph). It would have been obvious to one skilled in the art at the time this invention was made to provide multiple membrane elements in series or parallel to increase the conversion or permeate recovery percentage.

As to claims 4, 39, the harness rejection, e.g. salt rejection, is disclosed as greater than 30 %, e.g. 97.5 (column 9, lines 50-61).

As to claims 5-6 and 40-43, the specific fee side superficial velocity is not disclosed o be within the claimed value, although designing the fed channel to maintain the feed velocity constant through the length of the channel is disclosed (column 6, last paragraph).

As to claims 56-56, they are equivalent to claims 19-21, and the process performance will be based on the feed channel design, as discussed above.

9. Claims 7-16, 21-22, 44, 45, 46, 47, 48, 49, 50, 52, 53, 54, 57, 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holland et al (4,855,058)(hereinafter '058) as applied to claim 1 and 38 above, and further in view of Shippey et al (3,992,301)(hereinafter '301) and further in view of Uhlinger (6,190,556)

(hereinafter '556).. Reference '058 fails to disclose the injection of a gas in the feed during the process of using the spiral wound membrane. Reference '301 teach cleaning membrane surfaces by injecting or mixing a gas or air with the feed, and performing chemical cleaning automatically at periodic intervals (column 2, lines 19-67). The membrane is disclosed as spiral wound membrane (column 10, lines 58-68, and columns 11-12, lines 1-5). It would have been obvious to one skilled in the art at the time the invention was made to mix the feed water in line or in a separate step with a gas to provide bubbles that when inside the feed side of the membrane are capable of cleaning the membrane surface, increasing the permeate recovery, as disclosed in '301 (abstract). As to claim 8, collecting the permeate in a holding tank (no illustrate) bladder or accumulator is for further distribution or use is inherent on '301 (column 2, second paragraph), where teaching of conventional collecting and using a portion of the permeate for backwash is disclosed. The tank with control level is not disclosed in reference '058, or '304. '566 teach collecting permeate in a holding tank in a process of filtering water by spiral wound membrane modules series, the tank is provided with level control means and system for operating the feed pump based on the permeate level in the tank (Figure 1, elements 53, 57, 59, 19, 21 and 27). It would have been obvious to one skilled in the art at the time the invention was made to have a spiral wound membrane designed for a particular recovery ratio and permeability adapted with the tank level control operation suggested in '556.

It would have been obvious to one skilled in the art at the time the invention was made to inject air in the spiral module of '058, since reference '301 suggest the process for

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cleaning membranes in general and in particular membranes having a core member and membranes at the outer surface thereof (e.g. wrapped around the core).

Regarding to claims 10-13, 14, 15, 16, 21, 22, flushing with a chemical cleaning agent is disclosed in '304 (Fig. 1, element 13). As to claim 12, mixing the chemical by introducing by means of pump Ts3, is disclosed in '304, . As to claim 13, the chemical solution is injected or passed to the inlet of the module. As to claim 14 injecting the solution by gravity or other pressure means it would have been obvious to one skilled in the art at the time the invention was made, however a column of the solution generating the pressure to pass the fluid by the feed side will be required.

As to claim 15 no additional inlet other than the feed inlet is disclosed in '304 (Figure,, e.g. RO). As to claim 16, membrane provided with tanks above level and accumulator discharging without additional pressure are art recognized features.

Regarding claim 44, although reference '304 discloses the process for reverse osmosis apparatus, the same cleaning effect is expected to happen in term of membrane cleaning surface in an ultrafiltration membrane.

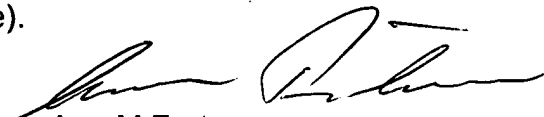
10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Reference 4,839,037 discloses spiral wound membrane designed with tapered configuration and its housing, the design is for producing a constant superficial velocity across the length of the module. Additional references discussed parameters affecting the superficial fluid velocity in a membrane module.

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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana M. Fortuna whose telephone number is (571) 272-1141. The examiner can normally be reached on 9:30-6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on (571) 272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ana M Fortuna
Primary Examiner
Art Unit 1723

AF
May 01, 2005